

culture 3L5 developed from 15 founder females netted over fallen cacao fruit in house yard on the Amazon River at El Marco, Brasil, near Leticia, Colombia, June 16-20, 1964 (U.S. National Museum); 10 ♂ and 10 ♀ paratypes from laboratory stock 3L5, same data. (Drosophila Type and Reference Collection) Austin, Texas.

## REFERENCES

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- Sturtevant, A. H. 1921. The North American Species of *Drosophila*. Carnegie Institution of Washington Publication 301, New Era Printing Co., Lancaster, Pa. p. 78.

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NEW SPECIES OF DOLICHOPODIDAE FROM THE  
UNITED STATES AND MEXICO  
(DIPTERA)

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The present paper is primarily intended to supplement the synopsis of the Dolichopodidae of the Southeastern United States (Robinson, 1964), and includes those undescribed species from the Eastern U.S. which have been encountered since that study. A number of species from the Western U.S. and some related or otherwise interesting species from Mexico and Central America are also described.

***Dolichopus crassitibia*, n. sp.**

(Figs. 1-4)

Male.—Length 3.0 mm; wing 3.0 mm by 1.0 mm.

Face about a fourth as wide below as high, becoming gradually wider above, covered with silvery white pollen; front broad, broader above, metallic greenish, almost completely covered with white pollen; palpus small, pale; proboscis brown. Antenna black; segment 1 short, widened distally from a narrow base, with hairs above; segment 2 shorter and wider, very short below; segment 3 about as long as wide, blunt; arista from near middle of dorsal edge. Lower postocular setae pale and somewhat flattened.

Thorax metallic green, slightly dulled with grayish pollen, a violet band between rows of small acrostichals; 6 pairs of large dorsocentrals. 5th pair set inward from the rest of the line; scutellum with large pair of bristles and small erect hair on the lateral margin; a black bristle over the fore coxa.

Legs black with black setae, all knees, tips of fore and middle tibiae, inner surface of fore tibia, and base of fore metatarsus yellowish. Fore and middle coxae with numerous bristles on anterior surface, distal ones large; middle and

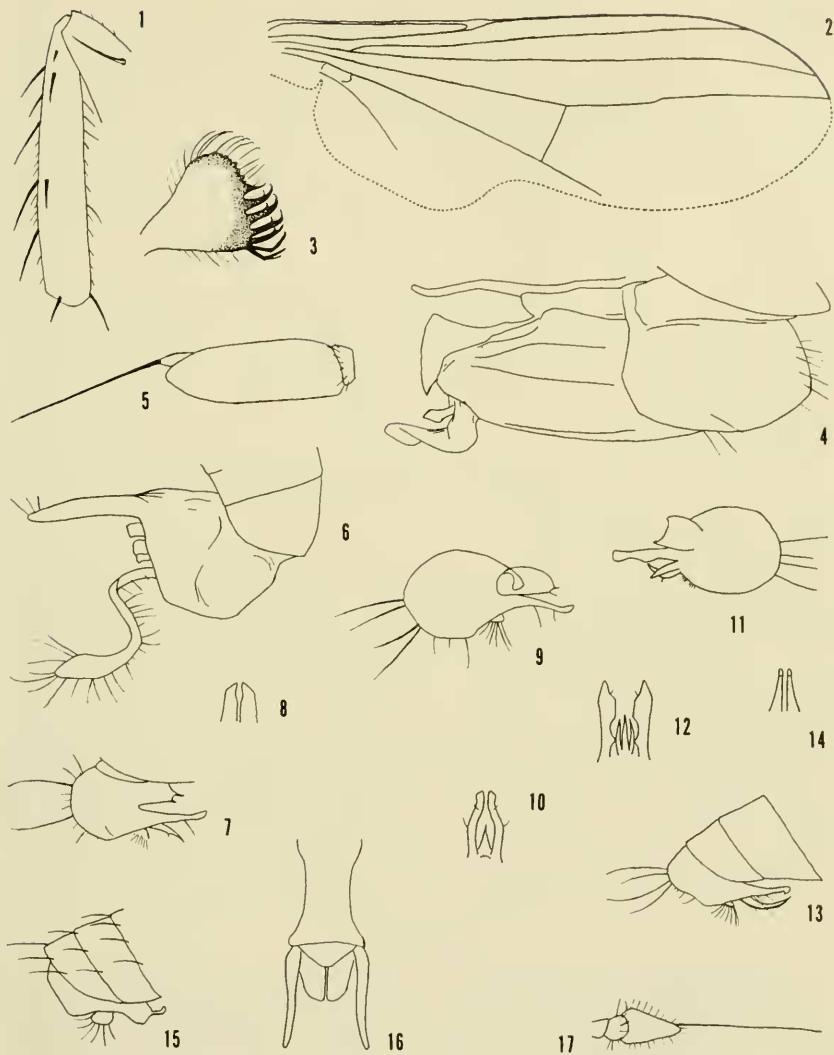


Fig. 1-17. Dolichopodidae, males. *Dolichopus crassitibia* n. sp. 1, hind tibia; 2, wing; 3, hypopygial lamella; 4, hypopygium. *Rhaphium steyskali* n. sp. 5, antenna; 6, hypopygium. *Diaphorus pseudopacus* Robinson. 7, hypopygium; 8, tips of hypopygial appendages, ventral view. *Diaphorus canus* Robinson. 9, hypopygium; 10, hypopygial appendages, ventral view. *Diaphorus bakeri* n. sp. 11, hypopygium; 12, hypopygial appendages, ventral view. *Diaphorus gibbosus* Van Duzee; 13, hypopygium; 14, tips of hypopygial appendages, ventral view. *Chryso-tus clypeatus* n. sp. 15, hypopygium; 16, face and mouth, palpi turned edgewise; 17, antenna.

hind coxae with a large external bristle; middle and hind femora with a preapical anteriorly, hind femur with a few long pale hairs along middle of lower posterior surface; fore tibia with a pair of indistinct dorsals near base, a second pair near the middle, of which the posterodorsal is rather large, 2 small posterodorsals and 2 larger apicals; middle tibia with 2 large anterodorsals and 1 small posterodorsal in basal third, 1 anterodorsal, 1 posterodorsal, and 1 ventral near distal third, 5 apicals; hind tibia (fig. 1) greatly thickened, with 3 anterodorsals of which 2 including a small one are near the base, 4 large posterodorsals, numerous indistinct ventrals, 2 apicals. Lengths of segments of fore tarsus from the base as 8-4-3-2-2; middle tarsus as 10-5-4-3-3; hind tarsus as 8-8-6-4-3, segment 1 very thick with 2 large bristles above.

Wing (fig. 2) rather oblong with a prominent anal angle and a large sinus behind the crossvein, hyaline with veins brown. Costa swollen at juncture of vein 1; veins 2 and 4 nearly parallel beyond the crossvein, vein 4 with slight double bend before middle of last part, vein 3 converging with vein 4 toward the tip; crossvein about as long as last of vein 5. Calypter, its setae, and knob of halter pale, stem of halter brown.

Abdomen about as long as thorax, tapering, shining metallic green dulled with grayish pollen on sides. Hypopygium (fig. 4) two-thirds as long as preabdomen, black with greenish tinges; lamellae (fig. 3) rounded, whitish with a jagged brown border; inner appendages pale.

Holotype ♂, from wasp nest, on shore of Potomac River by Plummers Island, Montgomery Co., Maryland, June 16, 1963, K. Krombein. Specimen in USNM, no. 69332. This is the "*Dolichopus* n. sp." listed as prey of *Ectemnius* (*Hypocrabro*) *paucimaculatus* (Packard) by Krombein (1964, p. 86).

The species would key to the group of species containing *Dolichopus kansensis*, *D. ovatus*, and *D. acuminatus* using my key to the southeastern species. The new species differs from these and from most other species of *Dolichopus* by the greatly thickened hind tibia and the deep sinus in the hind margin of the wing.

#### ***Rhaphium steyskali*, n. sp.**

(Figs. 5-6)

Male.—Length 5.3 mm; wing 4.0 mm by 1.5 mm.

Face long and narrow, becoming wider above, covered with white pollen; front broad, slightly wider above, metallic green with thin whitish pollen; palpus apparently yellow with pale hairs; proboscis brown. Antenna (fig. 5) brown with segment 1 yellow below; segment 1 widened distally to as wide as long, bare above; segment 2 very short, about as wide as first, ringed by submarginal black setulae; segment 3 about as long as face, elliptical, covered with fine pale hairs, with darker strand along dorsal margin ending at insertion of arista; arista slightly preapical, about as long as segment 3. Upper postocular setae black, lateral and lower postocular surface covered with long white hairs.

Thorax metallic green with mesoscutum very shining, thin whitish pollen evident toward margins and on pleura. Setae black; acrostichals short, biseriate; 5

pairs of long dorsocentrals; scutellum with a pair of long widely-separated bristles, a smaller bristle on each lateral margin; proepisternum covered with short pale hairs.

Coxae yellow, base of middle coxa slightly darkened externally, segments of fore and middle tarsi with brownish tips, dorsal margin of hind femur darkened distally, hind tibia brownish yellow and becoming brownish distally, hind tarsus dark brown, legs otherwise pale. Fore and middle coxae with numerous pale hairs on anterior surface, fore coxa without black setae, middle coxa with a cluster of black setae forming an apical thorn, middle and hind coxae with a long black external seta; posterior surface of fore femur with many rather long pale hairs, some pale hairs on hind surface of middle femur toward base, other setae of legs mostly black; femora without distinct preapicals; fore tibia with pair of small dorsals near basal fourth, small posterodorsal near middle, 1 distinct apical; middle tibia with 1 stout anterodorsal near base, smaller one beyond middle, 1 small posterodorsal near middle, 5 apicals; hind tibia with pair of short stout dorsals near middle, 1 anterodorsal near base, 1 posterodorsal near second fifth, 2 strong apicals. Lengths of segments of fore tarsus from base as 12-4-3-2-2; middle tarsus as 15-7-5-3-2; hind tarsus as 10-12-8-5-3.

Wing elongate oval, hind margin rather oblique distally, surface tinged with brown especially distally, veins brownish; vein 2 reaching twice as far along costa as vein 1, nearly straight; vein 3 nearly straight and parallel with 2 but curving gradually backward near tip; vein 4 slightly offset forward in middle of last part, nearly parallel with 3 at tip; crossvein nearly perpendicular to base of vein 5, two-thirds as long as last of vein 5; vein 6 represented by a strong fold that bends backward in middle. Calypter, its long setae, and halter pale.

Abdomen considerably longer than thorax, tapering, metallic green with slight whitish pollen on sides; long pale setae on sides of basal terga, long black setae along hind margins. Hypopygium (fig. 6) brown, rather small, extending slightly forward under preabdomen, tips prolonged into smooth light brownish rods; lamellae strap-like, acute apically, brown, with dark setae over outer surface, a few pale setae at tip.

Holotype ♂, Sweetwater Creek near old "Camp Torreya," Liberty Co., Florida, Mar. 23, 1954, George Steyskal. Specimen in USNM, no. 69333.

The new species would key to *Rhaphium insolitum* Curran but differs by having a much more massive third antennal segment and a much longer strap-like hypopygial lamella. The new species is the only *Rhaphium* known to me having a preapical arista.

***Diaphorus bakeri*, n. sp.**

(Figs. 11-12)

Male.—Length 2.7 mm; wing 2.7 mm by 1.1 mm.

Face about as wide as long; front triangular below, obliterated in upper half; both face and front brown with slight grayish pollen; palpus brown with a few dark hairs and a black apical seta; proboscis brown. Antenna brown, all segments of nearly equal length; segment 1 distally about as wide as long, bare above; segment 2 slightly wider than first, ringed by small setulae of which one above

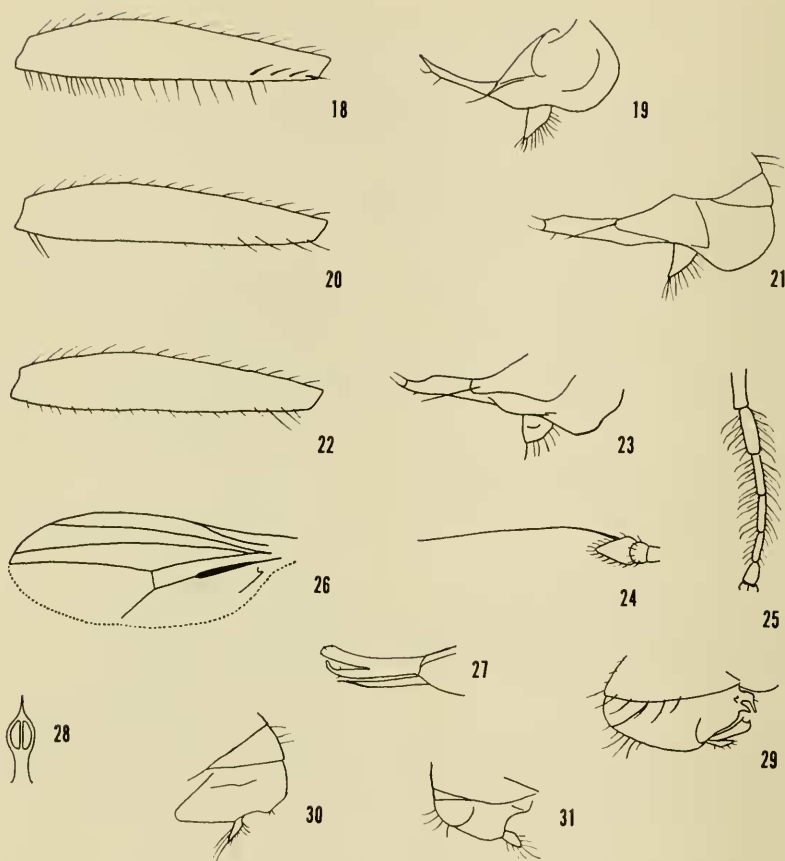


Fig. 18-31. Dolichopodidae, males. *Chrysotus picticornis* Loew. 18, hind femur; 19, hypopygium. *Chrysotus mexicanus* n. sp. 20, hind femur; 21, hypopygium. *Chrysotus neopicticornis* n. sp. 22, hind femur; 23, hypopygium. *Telmaturgus costaricensis* n. sp. 24, antenna; 25, fore tarsus. *Medetera marylandica* n. sp. 26, wing; 27, hypopygial appendages; 28, tip of aedeagus, ventral view. *Chrysotimus arizonicus* n. sp. 29, hypopygium. *Chrysotimus obscurus* n. sp. 30, hypopygium. *Chrysotimus metallicus* Parent. 31, hypopygium.

is rather long; segment 3 nearly twice as wide as long, covered with numerous fine pale hairs, with arista inserted near upper margin and with distal margin slightly produced below arista. Lower postocular surface covered with long black hairs.

Thorax brown, with slight yellowish pollen above, more grayish pollen on pleura. Mesoscutum rather strongly arched; bristles black; acrostichals small, biseriate; 5 pairs of dorsocentrals; 1 pair of long scutellars, a small seta on each lateral margin; a few small setae above the fore coxa.

Legs brown. Hairs and bristles black; fore and middle coxae with numerous black hairs on the anterior surface, fore coxa with larger setae on distal margin, middle and hind coxae with a large external bristle; fore femur with hairs on ventral surface of thickest part rather erect, with a row of prominent setae along anteroventral surface, hind femur with numerous long hairs along posteroventral surface and a few stiff hairs anteroventrally near tip, preapical bristles lacking; fore tibia with 1 very small anterodorsal near basal third; middle tibia with 2 anterodorsals and 2 posterodorsals all small, 4 large apicals; hind tibia with 2 small but distinct anterodorsals, 4-5 posterodorsals, 4 apicals. Lengths of segments of fore tarsus from base as 14-7-5-4-3, with tibia as about 23, pulvilli nearly as long as segment 5; middle tarsus as 16-8-6-4-3, pulvilli scarcely enlarged; hind tarsus as 11-9-6-4-3, pulvilli not enlarged.

Wing rather oval with basal part very broad, hind margin only slightly curved from middle to near tip of vein 4; surface with brownish tinge and brown veins; vein 1 reaching about half way from base to tip of vein 2; veins 2, 3, and 4 nearly straight and parallel beyond the crossvein, vein 3 only slightly more curved backward toward the tip; crossvein perpendicular to basal part of vein 4, about three-fifths as long as last of vein 5; vein 6 represented by slight fold. Calypter and halter brownish, setae of former black.

Abdomen longer than thorax, brown with slight yellowish gray pollen toward the sides and base; hairs and bristles black, longer toward the sides. Hypopygium (figs. 11, 12) brown, small, capping tip of preabdomen, with 4 large bristles projecting posteriorly from near base; hypopygium bearing straight slender arms with a swelling on middle of inner surface, a flange above forming a short hood, with a narrow setiferous appendage and a median hooked appendage between the arms reaching about half of length of arms.

Holotype ♂, from Olga, Washington, July 9, 1926, C. F. Baker. Specimen in USNM, no. 69334.

The new species would key to *Diaphorus nigricans* in the treatment of southeastern Dolichopodidae, but differs most noticeably by the presence of prominent setae posteroventrally on the hind femur. These setae plus the longer first wing vein provide distinctions from *D. fuscus*, and the lack of enlarged pulvilli on the middle and hind tarsi provide a further distinction from *D. snowi*. I have included illustrations of hypopygia of some of the related species having yellow tibiae; *D. pseudopacus* Robinson, figs. 7-8; *D. canus* Robinson, figs. 9-10; *D. gibbosus* Van Duzee, figs. 13-14.

***Chrysotus neopicticornis*, n. sp.**

(Figs. 22-23)

Male.—Length 2.1 mm; wing 2.1 mm by 0.9 mm.

Eyes essentially contiguous below the middle of the face, face narrow above mouth, covered with yellowish pollen; front broad, slightly broader above, metallic green with slight yellowish pollen; palpus yellow; proboscis yellowish brown. Antenna with first and most of second segment yellow, upper part of second and most of third segment brown; segment 1 bare above; segment 2 about as long as

but distally wider than first, with a submarginal ring of dark setulae; segment 3 longer than second, half again as long as wide, with arista in slight apical sinus. Lower postocular setae pale.

Thorax metallic green dulled with yellowish pollen above, with thicker whitish pollen on pleura. Setae black; acrostichals biseriate; 5 pairs of dorsocentrals; a pair of large scutellars, a small scutellar hair on lateral margin; a pale seta above fore coxa.

Legs mostly pale, middle coxa and base of hind coxa brownish. Setae mostly dark; many long pale setae on anterior surface of fore and middle coxae, hind coxa with a rather dark external bristle; fore femur with a series of prominent posteroventrals (distal ones longer), ventral setae paler toward base of femur; middle and hind femora with rather short pale ventral setae, those of hind femur evenly spaced, hind femur (fig. 22) with 2-3 brownish anteroventral bristles near tip; middle tibia with 1 strong anterodorsal and 1 weak posterodorsal near basal third, a very small bristle in each dorsal row beyond middle, 3 distinct apicals; hind tibia with 2 rather strong anterodorsals and 3 smaller posterodorsals rather evenly spaced, 2 apicals and 1 subapical. Lengths of segments of fore tarsus from base as 8-4-3-2-2; middle tarsus as 9-4-3-2-3; hind tarsus as 7-5-4-3-3.

Wing rather oblong oval, clear with brownish veins; veins 3 and 4 nearly parallel beyond crossvein, vein 2 only slightly diverging; crossvein perpendicular to last of vein 4, almost half as long as last of vein 5; vein 6 represented by a slight fold. Calypter and halter pale, setae of former pale brownish.

Abdomen only slightly longer than thorax, metallic green with slight pollen which is more yellowish above; setae mostly short with rather pale reflections, a few slightly longer and darker near tergal margins. Hypopygium (fig. 23) small, enclosed in tip of preabdomen; outer appendages small, pale; inner appendages primarily a pair of stout dark armatures with a blunt tip bearing 2 short but distinct setae.

Face of female wide, about half as wide as high; palpus with numerous black hairs. Setae on anterior surface of fore coxa much shorter, no long or distinctive setae ventrally on femora; setae of hind tibia generally stronger.

Holotype ♂ and allotype ♀, from soil of earth dam, wooded area about 3 miles north of Spartanburg, South Carolina, May 8, 1961; 2 ♂ paratypes, soil by stream, University of Tennessee Farm, Knox Co., Tennessee, July 18 and Aug. 11, 1957, all H. Robinson; 1 ♀ paratype, Duke Garden, Durham Co., North Carolina, April 28, 1959, H. S. Daoud; 1 ♂, Canton, New York, July 27, 1931; 2 ♂, Vincennes, Indiana, June 6; 2 ♂, Lafayette, Indiana, June 1 and 27, all J. M. Aldrich. Holotype (no. 69335), allotype, and the Aldrich collections in USNM; others presently in my collection.

For discussion see following species.

***Chrysotus mexicanus*, n. sp.**

(Figs. 20-21)

Male.—Length ca. 2.0 mm; wing ca. 2.0 mm by 0.9 mm.

Head, thorax, legs except hind femur, wing, and preabdomen essentially as

described for *C. neopicticornis*. Ventral margin of hind femur (fig. 20) with sparse pubescence, at base bearing a pair of distinct black setae that are very close and often adhere to each other. Hypopygium as illustrated (fig. 21).

Holotype ♂, allotype ♀, 6 ♂, 2 ♀ paratypes, from km 375, rt. 180, Veracruz, Aug. 7; 2 ♀ paratypes, soil by stream, near Santiago Tuxtla, Veracruz, Aug. 8, 1962; 1 ♂ and 2 ♀ paratypes, near Tierra Blanca, Veracruz, May 12, 1963; 3 ♂ and 2 ♀ paratypes, edge of shaded stream, Tuxtepec, Oaxaca, May 12; 1 ♀, above Rio Valle Nacional, Oaxaca, May 14, 1963; 1 ♂, near Jaltepec River, rt. 185, Oaxaca, Aug. 8; 3 ♂ and 1 ♀, near km 220, rt. 185, Oaxaca, Aug. 9, 1962; 4 ♂ and 1 ♀, El Salto, San Luis Potosí, May 9; 7 ♂ and 1 ♀, near junction of rts. 190, 200, Chiapas, May 21; 2 ♂ and 1 ♀, just below crest of Sierra above Arriaga, Chiapas, May 22; 1 ♂, Rio Lajas, Chiapas, May 23, 1963; all from Mexico collected by H. Robinson; 3 ♂ and 1 ♀, Clarke Hall, Dominica, Jan. 22–23; 2 ♂, near Layou River mouth, Mar. 10, 1964, H. Robinson; 6 ♂ and 3 ♀, Layou River mouth, Jan. 9; 1 ♂, same location, Mar. 8; 5 ♂ and 1 ♀, same location, Mar. 18–24; 7 ♂ and 2 ♀, Cabrit Swamp, Mar. 22–25; 4 ♂ and 1 ♀, Clarke Hall, Malaise and light traps, Jan. 8–Mar. 31; all 1964 collected by W. W. Wirth; 1 ♂, Clarke Hall, May 28; 1 ♂, Melville Hall Airport, July 14, 1966, George Steyskal; the latter all from Dominica collected during participation in the Bredin–Archbold–Smithsonian Biological Survey of Dominica. Holotype (no. 69336), allotype, and the Dominica collections in USNM; others presently in my collection.

After careful examination of the *Chrysotus picticornis* complex I find three distinct species are involved. Those specimens having a distinct dark spot and four or more distinct black bristles near the tip of the hind femur and rather dense pale pubescence ventrally near the base of the femur, are *C. picticornis*. In this species the hypopygial armature is very slenderly pointed. The two new species lack the distinctly dark tip on the hind femur and the anteroventral preapical setae are less distinct (sometimes only 1 present). Of the two new species, *C. mexicanus* is easily distinguished by the pair of black ventral bristles at the base of the hind femur. The hypopygial armature of *C. mexicanus* seems rather variable, in one specimen from Chiapas (near Arriaga) the armature is very broad and is curved on the lower edge, in specimens from Dominica the armature is very slender. Though the range of *C. picticornis* in the Neotropics is not as extensive as previously believed, I have collected specimens near Jitotol in Chiapas, Mexico.

***Chrysotus clypeatus*, n. sp.**

(Figs. 15–17)

Male.—Length 2.0 mm; wing 2.1 mm by 0.7 mm.

Face (fig. 16) very broad, becoming broader below, terminating at suture with



the broad and bluntly pointed clypeus greatly recessed from the plane of the face, covered with silvery white pollen; front slightly broader than upper part of face, dark brownish with thin yellowish pollen; palpus rounded-oblong, nearly as long as face, covered with silvery white pollen; proboscis small, brown. Antenna (fig. 17) brown; segment 1 very small, bare above; segment 2 larger but hardly longer, ringed by short brownish setulae; segment 3 triangular, slightly longer than wide, covered with fine pale pubescence, with arista borne just before apex. Lower postocular surface with many pale setae.

Thorax dark brownish, with slight yellowish pollen above, whitish pollen toward sides and on pleura. Setae black; acrostichals small, biseriate; 6 pairs of dorso-centrals, hind pair long; 1 pair of long scutellars, a small seta on lateral margin of scutellum; 1-2 pale setae above fore coxa.

Legs brown with fore and middle trochanters, all tibiae, and all but tips of basitarsi pale. Fore and middle coxae with pale setae on anterior surface; middle coxa with a brownish setae toward outside, hind coxa with black external seta; femora without preapical setae, a few prominent antero- and posteroventrals near tip of hind femur; fore tibia without distinctive setae; middle tibia with 1 strong anterodorsal near base, 1 very small ventral, 4 apicals; hind tibia with 2 small anterodorsals, 4 small posterodorsals, 4 stronger apicals. Lengths of segments of fore tarsi from base as 9-4-3-2-2; middle tarsus as 11-5-3-2-2; hind tarsus as 8-6-4-2-2.

Wing rather oblong, clear, veins brown; veins 3 and 4 parallel, curving slightly backward; crossvein near midwing, perpendicular to anterior wing margin, about two-thirds as long as last of vein 5.

Abdomen cylindrical, slightly longer than thorax, dark metallic brownish green; marginal setae of tergum 6 projecting, but not longer than setae of other terga. Hypopygium (fig. 15) small, embedded in tip of preabdomen, bare, brown; lamellae minute, brownish, pale pubescent.

Holotype ♂, Port St. Joe, Gulf County, beach, Florida, Mar. 17, 1954, George Steyskal. Specimen in USNM, no. 69337.

The new species seems most closely related to *Chrysotus lamellifer* Robinson, which has the same type of unusual clypeus, but *C. lamellifer* is a somewhat larger species with a short rather reniform third antennal segment and with a distinct ventral bristle on the hind basitarsus.

#### ***Telmaturgus costaricensis*, n. sp.**

(Figs. 24-25)

Male.—Length 1.8 mm; wing 2.0 mm by 0.8 mm.

Face very narrow, essentially obliterated in lower half; front broad, broader above, dark with violet reflections, with very slight pollen; palpus and proboscis brown. Antennal segments (fig. 24) 1 and 2 small, yellowish; segment 3 brown, triangular, half again as long as wide; arista dorsal from near base of third segment, plain. Postocular setae small, brown.

Thorax evenly rounded above, dark brownish above with violet reflections, only slightly pollinose; pleura yellowish. Acrostichals uniseriate, absent posteriorly; 4 pairs of large black dorso-centrals, posterior pairs largest, an anterior 5th pair very small; scutellum with 1 pair of bristles, no hairs.

Legs yellowish with dark setae. Middle femur with preapical bristles anteriorly and posteriorly; hind femur with both upper and lower preapicals anteriorly; middle tibia with antero- and posterodorsals paired near basal third, 1 antero-dorsal near distal third, 2 apicals; hind tibia with a few short indistinct dorsals, 2 very small ventrals. Lengths of segments of fore tarsus (fig. 25) from base as 8-6-5-5-3, segment 1 slightly thickened, all segments bearing very long curved setae along antero- and posteroventral surfaces; middle tarsus as 11-9-6-4-4; hind tarsus as 6-11-7-4-3.

Wing elongate oval, slightly brownish tinged, veins brown; veins 3 and 4 essentially parallel beyond the crossvein, vein 2 diverging slightly forward; crossvein a little over half as long as last of vein 5; vein 6 represented by slight fold. Calypter, its setae, and knob of halter brown.

Abdomen slightly longer than thorax, cylindrical, brownish with slight violet reflections; setae dark. Hypopygium small, set on tip of preabdomen, brown with small brown appendages.

Holotype ♂, La Suiza de Turrialba, Costa Rica, April 1922, Pablo Schild. Specimen in A. L. Melander collection in USNM, no. 69338.

The new species differs from *Telmaturgus parvus* (Van Duzee) of the Eastern United States by the presence of 4 pairs of dorsocentrals; it differs from *T. tumidulus* (Raddatz) of Europe by the plain arista and the differently shaped fore tarsus.

#### **Lamprochromus occidentalis, n. sp.**

Male.—Length 2.0 mm; wing 2.0 mm by 0.8 mm. Setae mostly black.

Face wide above, gradually becoming very narrow below, covered with silvery white pollen; front broad, broader above, shining dark green; palpus small, brown; proboscis brown. Antenna black, all segments short and about as long as wide; segment 1 bare above; segment 2 with a ring of setulae and 1 long dorsal seta; segment 3 pointed, with a dorsal arista. Lower postocular setae pale.

Thorax bright metallic green with a violet stripe along middle of mesoscutum, a patch of velvety black above wing base; grayish pollen on pleura. Acrostichals biseriata; 4 pairs of dorsocentrals; 1 pair of strong scutellars, a small hair on lateral scutellar margin; proepisternum with a few pale setulae before anterior spiracle.

Middle and hind coxae slightly brownish basally, fore and middle tarsi rather darkened distally, hind leg brown except basal third of femur, legs otherwise pale. Fore coxa with numerous small pale hairs and distally with black setae on anterior surface; middle and hind coxae with a large seta toward the outer surface; middle and hind femora with preapical bristles; fore tibia with 1 small anterodorsal near base; middle tibia with 2 small anterodorsals, 2 larger posterodorsals, 4 apicals; hind tibia with 2 strong anterodorsals, many large posterodorsals of which some are quite prominent, 3 apicals. Lengths of segments of fore tarsus from base as 9-4-3-2-2; middle tarsus as 11-7-5-3-3; hind tarsus as 9-10-5-3-5.

Wing rather oval, slightly brownish; veins 2, 3, and 4 curving only very slightly backwards, veins 3 and 4 essentially parallel beyond crossvein; crossvein perpendicular to base of vein 4, two-thirds as long as last of vein 5; vein 6 represented by a slight fold; anal angle only moderately rounded.

Abdomen longer than thorax, cylindrical; wholly metallic green. Hypopygium capping tip of preabdomen, dark with small brownish appendages.

Holotype ♂, from Wells, Nevada, July 12, 1911; 1 ♂ paratype, from Juliaette, Idaho, July 5, 1930; both J. M. Aldrich. Specimens in USNM, no. 69339.

The new species differs from others known from North America by the wholly metallic abdomen. It differs from European species by the short pointed antenna and the almost wholly brownish hind leg.

***Medetera marylandica*, n. sp.**

(Figs. 26-28)

Male.—Length ca. 2.0 mm; wing 2.0 mm by 0.7 mm.

Face narrow below, metallic dark green, slightly dulled by yellowish white pollen; front broad, broader above, slightly more pollinose than face; head strongly excavated behind vertex; palpus and proboscis black. Antenna blackish, all segments short, segment 3 truncate with an apical arista. Postocular setae black with pale reflections.

Thorax strongly arched with strongly flattened posterior slope, dark metallic green dulled with grayish pollen. Acrostichals biseriate, absent posteriorly; 4 pairs of large black dorsocentrals becoming progressively smaller and grading into hairs anteriorly; 4 scutellar bristles, lateral pair small; proepisternum with a few small black setae below.

Legs with fore and middle knees and tibiae, basal joints of fore and middle tarsi yellow, hind tibia yellowish brown, remainder of legs brown. Setae brownish, all but larger with pale reflections; middle femur with numerous longer setae along anteroventral surface in distal half; hind femur with 2 bristles toward tip in middle of anterior surface; middle tibia with small anterodorsal and smaller posterodorsal paired near basal third. Lengths of segments of fore tarsus from base as 10-4-3-2-4; middle tarsus as 14-6-4-3-2; hind tarsus as 8-10-6-3-4, basitarsus with a deep prominently rimmed pocket basally on inside surface.

Wing (fig. 26) rather oval, clear, veins brown; vein 2 and last of vein 4 nearly parallel, vein 3 curving backward and ending near vein 4; base of vein 5 thickened for nearly two-thirds its length; crossvein slightly over half as long as last of vein 5; vein 6 represented by slight fold. Calypter and halter pale, setae of calypter brownish.

Preabdomen about as long as thorax, strongly tapered, metallic blackish green with slight yellowish white pollen; terga bearing small black marginal bristles. Hypopygium pedunculate, black; appendages (fig. 27) yellow, lateral lamella deeply cleft, aedeagus (fig. 28) slender with a preapical enlargement.

Holotype ♂, Bethesda, Montgomery Co., Maryland, July 24, 1965, George Steyskal. Specimen in USNM, no. 69340.

The new species seems closest to *Medetera freyi* E. Thunb. of Europe in the shape of the genitalia, more like *M. excellens* Frey in leg color. Of these the former has a much shorter thickened area on the fifth vein and the latter has much paler pubescence. The only previously known North American species with a thickened fifth vein, *M.*

*crassivenis* Curran, has the last part of the fifth vein hardly half as long as the crossvein, and has a hind femur with more and longer hairs anteriorly but no bristles.

***Chrysotimus arizonicus*, n. sp.**

(Fig. 29)

Male.—Length 2.0 mm; wing 2.6 mm by 1.0 mm. All hairs and bristles pale.

Face broad with sides nearly straight and parallel, metallic green with slight gray pollen; front broad with sides diverging from below, metallic green with yellowish pollen; palpus yellow with a number of hairs; proboscis brown. Antenna black, with all segments short; segment 1 bare above; segment 2 ringed with small setulae; segment 3 triangular, covered with small hairs, with arista inserted near middle of the oblique dorsal margin. Lower postocular setae in single series.

Thorax metallic green except the yellow metepimeron, with yellowish pollen above, more grayish pollen on pleura; posterior slope of mesoscutum flattened. Acrostichals small, irregularly biseriate; 5 pairs of large dorsocentrals; 1 pair of long scutellars, a small seta on lateral scutellar margin; proepisternum with a few short setae above fore coxa.

Legs yellow except the black fifth segments of the tarsi. Fore and middle coxae with numerous hairs on anterior surface, fore coxa with a series of bristles on distal margin; middle and hind coxae with a strong external bristle; middle and hind femora with a preapical bristle; fore tibia without evident bristles; middle tibia with 2 anterodorsals near base and middle, a smaller posterodorsal near each, 3 apicals; hind tibia with 2 anterodorsals and 3 posterodorsals, 2 small but distinct apicals. Lengths of segments of fore tarsus from base as 9-4-3-2-2; middle tarsus as 11-5-3-2-2; hind tarsus as 8-6-4-3-3.

Wing rather oval, clear with yellow veins; veins 2, 3, and last part of 4 all very slightly curved backwards and nearly parallel to each other and to front wing margin, vein 3 slightly more curved toward tip, vein 4 ending at or just behind tip of wing; crossvein perpendicular to base of vein 4, two-fifths as long as last of vein 5; vein 6 represented by a slight fold. Calypter and halter yellow.

Abdomen only slightly longer than thorax; shining metallic green terga dulled with slight yellow pollen, sterna yellow. Hypopygium (fig. 29) brown, apparently usually partly concealed, extending forward nearly half length of preabdomen; appendages brown.

Female very similar to male except in abdomen. First 4 segments of abdomen yellow, segment 5 broad and metallic green; middle of hind margin of tergum 4 slightly indented.

Holotype ♂, allotype ♀, and 1 ♀ paratype, from Grand Canyon National Park (north rim), Arizona, July 15, 1954, W. L. Downes, Jr. Holotype (no. 69341) and allotype in USNM, paratype in the Downes collection at the Department of Entomology, University of Illinois.

The new species seems close to *Chrysotimus luteopalpus* Curran, but the antenna of the latter species is mostly yellow and the female abdomen has the fifth tergum yellow and margins of the other terga plain.

***Chrysotimus schildi*, n. sp.**

Male.—Length 1.5 mm; wing 2.0 by 0.8 mm. Hairs and bristles mostly yellow, verticals, ocellars, and anterior dorsocentrals brownish.

Basic characters as in *C. arizonicus* but antennae yellow with an apical arista; only center of mesoscutum bright metallic green, thorax otherwise yellow; hind tibia with only 1 obvious anterodorsal, posterodorsals very small and indistinct; lengths of segments of fore tarsus from base as 13-6-5-3-3, middle tarsus broken off, hind tarsus as 11-9-6-4-3; wing vein 4 ending slightly behind wing tip; abdomen yellowish on lateral margins of terga, pale brownish below; hypopygium brownish with greenish reflections, of structure similar to *C. obscurus* & *C. metallicus*, bases of appendages yellow.

Female abdomen with tergum 1, all but central posterior triangle of tergum 3, and sides of tergum 4 yellow.

Holotype ♂ and allotype ♀, La Suiza de Turrialba, Costa Rica, April, July 1922, Pablo Schild. Specimens in A. L. Melander collection in USNM, no. 69342.

The species is readily distinguished by the dorsal spot of metallic green on the mostly yellow thorax.

***Chrysotimus obscurus*, n. sp.**

(Fig. 30)

Male.—Length 1.8 mm; wing 2.3 by 1.0 mm.

Similar to *C. arizonicus* but hairs and bristles of body brownish, those of legs more yellowish; head and thorax including metepimeron much darker metallic green, abdomen brownish with green reflections (hypopygium as in fig. 30); front and mesoscutum with light grayish pollen; palpus black; antennal segment 3 very blunt with an essentially apical arista; acrostichals distinctly biseriate; coxae except tips and hind femur except extreme base and tip brown; middle tibia with 2nd anterodorsal near distal third, 1-3 posterodorsals; lengths of segments of fore tarsus from base as 8-4-3-2-2, middle tarsus as 10-5-4-2-2; hind tarsus as 8-6-4-3-2; wing veins brownish yellow, vein 4 ending slightly behind wing tip, crossvein perpendicular to last of vein 4; setae of calypter brownish.

Holotype ♂ and 1 ♂ paratype, from roadside foliage, rain forest, Sierra Juarez above Rio Valle Nacional, Oaxaca, Mexico, May 17, 1963, H. Robinson. Holotype in USNM, no. 69343; paratype presently in my collection.

*Chrysotimus obscurus* seems close to such species as *C. pusio* Loew and *C. metallicus* Parent, but is distinct by the brownish coxae and hind femur and the blunt third antennal segment with an apical arista. *Chrysotimus metallicus* has brownish bristles as in *C. obscurus*, but the anterior wing margin is more curved and the second and fourth veins are less distinctly parallel. The female of *C. pusio* has a partly yellow abdomen as is common in the genus, but *C. obscurus* may prove to be more related to *C. metallicus*, in which the female abdomen is entirely metallic green.

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FURTHER STUDIES ON THE TARSONEMIDAE  
(ACARINA)

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In a continuation of studies on the Tarsonemidae (Smiley, 1964), a family of mites of importance to agriculture, I here describe one species belonging to the genus *Hemitarsonemus* Ewing, two species to the genus *Stenotarsonemus* Beer, and two species to the genus *Tarsonemus* Canestrini as new from material in the U. S. National Museum collection. All are from the Western Hemisphere. Also included in this study are five new species of tarsonemids collected from various areas in the South Pacific and submitted for determination by D. M. C. Manson of the Horticultural Research Centre, Department of Agriculture, Levin, New Zealand. This collection is represented by the following genera: *Hemitarsonemus* Ewing (one species), *Tarsonemella* Hirst, and *Tarsonemus* Canestrini (four species). The genus *Neotarsonemus* is here erected to include the two species, *Hemitarsonemus latus* (Banks) and *H. beeri* Smiley in which legs IV of the males possess terminal claws which are reduced to a ball-like process. The genus *Fungitarsonemus* Cromroy (1958) is here synonymized with the genus *Hemitarsonemus*. Ewing (1939) and Beer (1954) give an excellent historical account of the confusion and errors made previously in the genus *Hemitarsonemus* and perpetuated by former acarologists. It is hoped that this present generic arrangement will alleviate past and future errors.

A key is presented for the males of species belonging to *Hemitarsonemus*. *Tarsonemella* is reviewed, and additional morphological characters are supplied for the genus as well as for *T. beameri* Beer.